

XXXIII. *On the Plant which yields the Gum Ammoniacum.*
By Mr. David Don, Libr. L.S.

Read December 7, 1830.

TO discriminate and characterize those plants which more immediately administer to the wants and comforts of man, is one of the chief objects of practical botany; but it is a task replete with difficulties,—the countries whence many of the substances are derived, particularly those belonging to the *Materia Medica*, being generally remote and often inaccessible to travellers.

Although the gum *Ammoniacum* has held a place in the *Materia Medica* from a very early period, yet the plant from which it is obtained has hitherto remained almost totally unknown; and the same may be said of the analogous gum *Galbanum*, and many other articles derived from the vegetable kingdom enumerated in the *Pharmacopœia*. It is true, *Dioscorides* and *Pliny* mention the plant which yields the gum *Ammoniacum*, the former under the appellation of *Agasyllis*, and the latter under that of *Metopium*, and give *Libya* as its native country: but if the gum was anciently imported thence, it must have been the produce of a different plant from the one I shall shortly describe; and probably identical with the species of *Ferula* represented by *Jackson* in his *Account of Morocco*, as the gum now comes to Europe by way of the *Levant* and *India*. *Dioscorides*, whose opinion is adopted by all subse-

quent writers, derives the name *Ammoniacum* from Ammon or Hammon, the Jupiter of the Libyans, whose temple was situated in the desert of Cyrene, near to which the plant was said to grow. But it appears to me that Dioscorides was altogether mistaken as to its native country ; and that the name Ammoniacum or Armoniacum, as it is indifferently written, is really a corruption of Armeniacum, for it is now ascertained beyond all doubt that the plant is a native of Persia, and that the gum must have anciently been brought to Europe by way of Armenia ; and we find in ancient authors the name of the apricot sometimes written *Malum Armoniacum*.

Willdenow fancied he had obtained the plant itself ; for having sown some seeds picked from the gum Ammoniacum, a species of *Heracleum* came up, of which he has published a figure and description in the "*Hortus Berolinensis*," under the name of *H. gummiferum* ; but as the plant possesses no smell analogous to Ammoniacum, and affords no gummy substance whatever, it is probable it was only an accidental weed, as it does not appear to be specifically different from *Heracleum pyrenaicum*.

The materials from which I drew up the following description were procured, by Lieut.-Colonel Wright of the Royal Engineers, in the district where the gum Ammoniacum is collected, —namely, in the vicinity of Jezd Khāst, a town of Irāk El Ajam, the ancient Parthia, about forty-two miles south of Ispahan, — and presented by him along with other dried plants to the Linnean Society. Every part of the specimen is covered with drops of a gum possessing all the properties of Ammoniacum ; and this circumstance alone, independent of any other evidence, would seem sufficient to remove all doubt on the subject : but besides, I have carefully compared the specimen with the portions of inflorescence and fruit, which are found abundantly intermixed with

with the gum in the shops, and I find them to agree in every particular. The name applied to the plant by Dioscorides is already preoccupied by another genus of *Umbelliferæ*; and that of Pliny is scarcely unexceptionable, as originating in a mistake, *Metopium* having been used by some ancient authors to denote the Galbanum, and by others the gum Arabic tree; but most writers seem to agree in considering it the appellation of an ointment, or some oleaginous substance, rather than of a plant. To avoid any confusion, and as the plant proves to be a new genus, I propose to call it *Dorema*, from the Greek word *δορεμα*, a gift or benefit; not that I consider the Ammoniacum plant as pre-eminently deserving that title, but the name is at least a short one, and agreeable to the ear,—considerations not to be overlooked in nomenclature. I shall now proceed to give the essential character and a detailed description of the genus.

DOREMA.

Syst. Linn. PENTANDRIA DIGYNIA.

Ord. Nat. UMBELLIFERÆ. *Juss.* Trib. vii. PEUCEDANÆ.
DeCand.

CHAR. ESSENT. *Discus epigynus* cyathiformis. *Achenia* compressa, marginata: *costis* 3 *intermediis* distinctis, filiformibus. *Valleculæ* univittatæ. *Commissura* 4-vittata.

DESCR. *Flores* lanugini immersi, sessiles! *Calycis margo* 5-dentatus: *dentibus* ovatis, acutis, membranaceis, exiguis. *Petala* 5, ovata, acumine inflexo. *Stamina* 5, citò caduca: *filamenta* complanata, basi dilatata: *antheræ* incumbentes, biloculares: *loculis* longitudinaliter dehiscen-
tibus, basi solutis, parùm divergentibus. *Ovaria* subteretia, lineis 6 utrinque exarata: *disco epigyno* amplo, car-

noso, cyathiformi, margine plicato, sublobulato. *Styli* complanati, leviter canaliculati, basi dilatati, subconnati apice recurvati. *Stigmata* truncata. *Fructus* ellipticus, à dorso valdè compressus, margine complanato, latiusculo cinctus: *raphe* angustissimâ, sæpè clausâ. *Achenia* 2, parallela, 5-costata; *costis intermediis* 3, distinctis, filiformibus, equidistantibus; *lateralibus* 2 cum margine confluentibus. *Valleculæ* univittatæ: *vittis* prominulis. *Commissura* plana, dilatata, 4-vittata, sulco levissimo medio exarata. *Columella* filiformis, tenuissima, bipartita. *Semen* complanatum: *albumen* corneum, continuum, testâ adhærenti.

Herba (Persica) *robusta*, *glauco-viridis*, *radice perenni*, *pubè glandulosâ vestita*, *facie ferè Opopanacis*. *Folia ampla*, *petiolata*, *subbipinnata*, *bipedalia*: *pinnis subtrijugis*, *per paria remotis*: *foliolis inferioribus distinctis*; *superioribus confluentibus*, *inciso-pinnatifidis*: *segmentis oblongis*, *mucronulatis*, *integerrimis*, *v. rarè sublobatis*, *coriaceis*, *subtùs venosis*, 1—5-pollicaribus, *semunciam v. 2 uncias latis*. *Petiolum cum rachide teretiuseculi*, *costati*, *pubescentes*, *basi valdè dilatati*, *subvaginantes*, *margine superiore alato*, *stipulaceo*. *Umbella prolifera*, *racemosa*. *Umbellulæ globosæ*, *breviter pedunculatæ*, *spicato modo sæpè dispositæ*, *pilorum lanæ minorum instar*. *Pedunculi teretes*, *lanuginosi*. *Involucrum et Involucellum nulla*. *Petala alba*. *Stamina et Styli flava*. *Ovaria densissimè lanata*. *Fructus nudus*.

1. D. Ammoniacum.

Habitat circa pagum Jezd Khāst in Persiâ meridionali. *D. Wright.* 4. (v. s. sp. in Mus. Soc. Linn.)

The large cup-shaped epigynous disk, and the solitary resiniferous canals distinguish this genus from *Ferula* and *Opopanax*,
to

to both of which it is closely allied. The flowers being completely sessile is also a remarkable character.

With respect to the plant which yields the gum Galbanum I am enabled to say but little, not having seen any part of it except the fruit, some of which, almost perfect, I have been so fortunate as to pick from the gum. These, however, are quite sufficient to determine the most important characters of the plant, which appears to constitute a new genus allied to *Siler*, but differing essentially from it in the absence of dorsal resiniferous canals, and the commissure being furnished with only two. I propose for the plant the appellation of *Galbanum officinale*, and shall conclude these few imperfect observations by adding a description of the fruit.

Fructus à dorso compressus, ellipticus, unguicularis : *raphe* angustâ apertâ, nec clausâ. *Achenia* 7-juga : *jugis* elevatis, compressis, obtusè carinatis, nec alatis ; *lateralibus* distinctis, marginalibus. *Valleculæ* latiusculæ, concavæ, evittatæ ! *Commissura* plana, dilatata, bivittata : *vittis* latis, subarcuatis.

The plant, according to Dioscorides, is a native of Syria ; but it must be in some remote and inaccessible part of it, as it has not been observed by any of the numerous travellers who have visited that country.

As the gum is partly imported from Smyrna, and partly from India, it is very probable that the plant is also a native of Persia.

The *Bubon Galbanum* of Linnæus possesses neither the smell nor the taste of Galbanum, but in these particulars agrees better with Fennel, and the fruit has no resemblance whatever to that found in the gum. How a plant differing so essentially
from

from Galbanum should yet have been retained so long in the Pharmacopœia may well be a subject of surprise, especially as the *Bubon Galbanum*, being so frequent in botanical collections, afforded abundant opportunities of settling the question.

Since writing the above, I have been enabled, by the assistance of friends, to add the following information on the subject of the Ammoniacum plant.

The first volume of the *Dictionnaire Universel de Matière Médicale*, by Mérat and De Lens, published at Paris in 1829, contains some valuable notices on the Ammoniacum plant, from which it appears that the plant was already known to Mr. Brown, and had been determined by him to constitute a new genus. We also learn from the same work, that M. Fontanier, a geologist sent into the Levant by the French Government, had visited the district where the plant grows spontaneously; and transmitted a drawing together with specimens of the herb and gum to the Museum of Natural History at Paris. M. Fontanier was informed that the plant grows likewise in Khorāsān.

In the Appendix to the first volume of the Transactions of the Medical Society of Calcutta, p. 369, is an extract of a letter addressed to Dr. Wallich by Lieut.-Colonel Kennett, accompanied by a rude figure of the plant which yields the gum Ammoniacum, of which the following is a copy.

“I have the pleasure to forward you a drawing and description of the *Oshac*, a Persian plant that produces the gum Ammoniac. It was procured by Captain Hart (of the 5th batallion Bombay native regiment) whilst on sick certificate in Persia; and understanding it was a desideratum in botany, he has requested me to send it to you in his name. It is to be regretted that Captain Hart did not know enough of botany to give

give a particular description of the plant, flower, and seed; but he brought away a root, with a piece of the stem and some dry leaves attached, and which I have forwarded in a box to your address. You will observe the account of the plant is dated in July 1822, though I only received it a short time ago.

“ ‘Description of the *Oshac*, or Gum Ammoniac Plant.

“ ‘It having been intimated to me while at Bushire, by the Resident, Captain Bruce, that the plant which produces the gum Ammoniac,—called by the Persians *Oshac*,—would be acceptable to botanists, as it was but imperfectly known, I procured the accompanying piece of stem, leaf, and flower, and took a drawing of one of the finest plants. Its height was seven feet two inches, and the circumference of the lower part of the stem four inches. It grows principally on the plains between Yerdekaust and Kumisha, in the province of Irauk, without cultivation. The gum is so abundant, that upon the slightest puncture being made, it instantly oozes forth, even at the ends of the leaves. When the plant has attained perfection, innumerable beetles, armed with an anterior and posterior probe of half an inch in length, pierce it in all directions; it soon becomes dry, and is then picked off, and sent *via* Bushire to India and various parts of the world, and is an article of considerable export. I am of opinion it might be cultivated with success in many parts of Kattywar, and the experiment might be worth the consideration of Government. The gum might easily be procured by artificial means, which would answer the purpose equally well.

“ ‘From the part of the stem attached to the roots of the specimen I sent you, a considerable portion of the gum will be seen exuded, in which respect it resembles the *Assafoetida* plant,

plant, which abounds in the mountains in the south of Persia, particularly in the province of Lar.’”

The gum is collected about the middle of June; a tenth is remitted as tribute to the Government; the rest is sent to Bushire on the Persian Gulf, and thence to Europe. Part of that imported to this country came from the Levant; but Mr. S. F. Gray, F.L.S. informs me that the largest quantity and the best comes by way of India.

For the following particulars I am indebted to Major Willock, who has visited the districts where the plant grows wild. “The *Ooshāk* or gum *Ammoniacum* plant grows in great abundance over the arid plains in the vicinity of the town of Jezud Khāst, on the borders of the provinces of Fars and Irak. Jezud Khāst is a district appertaining to the Government of Ispahan. The plant is perennial, and throws up from the root a cluster of leaves, and one or more strong vigorous naked stems, of three or four feet in height, divided into joints of five or six inches long, throwing out various branches of equal length. The white juice which forms the gum pervades the whole plant, but exudes chiefly from the principal stems. It either remains on them in lumps, or, falling to the ground, is gathered by the villagers in the autumn, and is sold by them. The *Ooshāk* plant is to be met with nowhere but in the province of Irak, growing in very dry plains, gravelly soils, and exposed to an ardent sun.”